

SYSTEMATIC NOTES ON THE GENUS *FORMICILLA*  
IN THE UNITED STATES AND MEXICO

(Coleoptera: Anthicidae)

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Present definitions of species of *Formicilla* seem to be drawn largely from characters of little taxonomic significance or from features which are generic in nature rather than specific. The genus itself has been defined on the basis of but a few of its real taxonomic characters and hence has been erroneously separated from that group of genera now classified as *Anthicus*, within whose phylogenetic limits it more properly lies. However, since Casey's genera seem for the most part to be valid on the basis of numerous, clear, morphological differences throughout the whole range of American Anthicids, it seems best to retain *Formicilla* for the present as a distinct genus. Unfortunately the South American species have not been available for this study, but it is hoped that this paper will simplify the task of assigning them to their correct systematic position.

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Genus *FORMICILLA* LeConte

*Formicilla* LeConte, 1851, Ann. Lyc. Nat. Hist. New York, 5:152; Casey, 1895, Ann. New York Acad. Sci., 8:644; Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

*Anthicus* LeConte, 1852, Proc. Acad. Nat. Sci. Phila., 6:94 (not *Anthicus* Paykull, 1798).

*Formicus* LeConte, 1861, Class. of Coleopt. Part I, Smithson. Misc. Col., 3:266.

*Formicomus* LeConte and Horn, 1883, Class. of Coleopt., p. 412 (not *Formicomus* LaFerte, 1848); Champion, 1890, Biol. Centr.-Amer., 4(2):220; Fall, 1901, Occas. Papers Calif. Acad. Sci., 8:180-1.

Pubescence of dorsal surfaces variable, punctation setiferous, fine, and remote; ventral surfaces and legs covered with light recumbent to sub-recumbent pubescence, punctation minute and remote. *Head* convex, unimpressed at base; antennae gradually incrassate, eleventh segment entire and conoidal; ultimate palpal joint securiform. *Pronotum* elongate, strongly constricted at about basal third, constriction not extending across dorsal surface; collar narrow but deeply constricted; basal margin distinct. *Elytra* more or less convex with slight posthumeral depression or flattening; maculation consisting of median, apical, and sometimes humeral dark areas; intervening light areas transparent with variable, opaque reticulation; vannal veins of hind wings two, simple and unbranched. *Anterior coxal cavities* partially but not entirely closed by inward prolongation of lateral lobes behind coxae. Mesosternum extended laterad in broad, flat, laterally rounded, shining plate, wider than base of pronotum and visible from above in humeral angle, anterior margin subtransverse, lateral setae long, curving upward, inserted singly (not in pairs). Mesepisternum widely joined at midventral line, not visible from above and not visible between lateral margin of mesosternum and base of elytron. Medio-anterior margin of metasternum evenly concave and not produced between coxal cavities. *Legs* long and slender, profemora only moderately clavate, tibial spurs present, penultimate segment of metatarsus variable. Sixth abdominal sternite of male with narrow median cleft to base, inner margins of cleft slightly bilobed, tip of apical lobe bent slightly downward. Median lobe of aedeagus long and slender, evenly tapering to apex, without lateral parameres. Apical expansion of spicule triangular and bearing on either side a thin, sclerotized appendage. Last abdominal tergite apically rounded and not thickened, not reflexed internally, nor otherwise modified.

Genotype—*Formicilla munda* LeConte (monobasic).

*Formicilla* is readily separable from other nearctic genera on the basis of pronotal, sternal, and genital characters as well as by its vestiture and general shining appearance. The narrow cleft of the sixth abdominal sternite is unlike that of any North American Anthicid I have seen, while the mesosternum with a dilation so broad that the mesepisternum is not visible between its lateral edges and the bases of the elytra separates it from all genera except *Dilandius*. However, the latter is distinct through differences in the median lobe and sixth abdominal sternite, in the shape of the pronotum in which the constriction extends across the dorsal surface, and in the peculiar shape of the head. In describing the procoxal cavities of *Formicilla* I have found it necessary to disagree with Casey, who stated that they were closed; in

*Dilandius* they are unmistakably closed, but only partially so in *Formicilla*.

The determination of species limits is made difficult by apparent gaps in the geographical record, gaps which are possibly not real but conceivably the result of a failure to collect these minute beetles. It is certainly true that there are two distinct complexes in the genus, that of *scitula* in the south-eastern United States and Texas, and that of *munda* with its allied forms extending from the San Joaquin Valley of California into Mexico and Central America. Specific characters are to be found in the vestiture, in the form of the elytra, in the shape of the penultimate metatarsal segment, in elytral coloration and maculation—though these are subject to considerable variation—and in a comparison of the width of the head with that of the anterior pronotal lobe. Careful comparative measurements of the lengths of the last three antennal segments show small mean differences, but the extremes overlap, at least in the species considered here, and hence the comparisons of these made by Casey do not have diagnostic value. The same thing has been found true of comparative measurements of the length and width of the pronotum, and of the length and width of the elytra.

KEY TO THE SPECIES OF FORMICILLA  
IN THE UNITED STATES AND MEXICO

1. Elytra with fine, sparse, subrecumbent hairs and usually long setae; penultimate metatarsal segment much longer than wide, barely emarginate apically, ultimate segment inserted near apex; anterior lobe of pronotum round; ratio of width of head to width of pronotum very nearly equal.....2
- Elytra with long setae but without subrecumbent hairs; penultimate metatarsal segment short and bilobed, ultimate segment inserted before the middle; anterior lobe of pronotum obovate; ratio of width of head to width of pronotum closely approximating 1:0.9 .....4
2. Ground color of elytra definitely lighter than color of pronotum and head; median band wide, faintly interrupted or confluent at suture; posterior band enveloping apex; Arizona and Sinaloa, Mexico .....*gilensis*
- Ground color of elytra same as color of pronotum and head; median band wide to narrow, interrupted widely to narrowly at suture; posterior band only occasionally enveloping apex....3

3. Humeri of elytra not or faintly marked with dark, apex of elytra never entirely enveloped by posterior fasciae; California and Arizona .....*munda munda*
- Humeri of elytra occasionally strongly marked with dark, apex of elytra occasionally enveloped by posterior fasciae, fasciae occasionally extremely reduced; Southern Mexico to Guatemala .....*munda gracilipes*
4. Median fasciae separated by space equal to half width of elytron; posterior band narrower than space between it and apex; islands off coast of So. Carolina and Georgia.....*scitula scitula*
- Median fasciae contiguous or separated by space equal to less than half width of elytron; posterior band wide, as wide or wider than space between it and apex or enveloping apex, sometimes confluent with median band; Georgia mainland to Texas .....*scitula evanescens*

#### FORMICILLA GILENSIS Casey

*Formicilla gilensis* Casey, 1895, Ann. New York Acad. Sci., 8:647-8; Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

Polished, head and body light to dark piceous, dorsal surface sparsely set with fine, short, subrecumbent hairs and usually with sparse, long, erect setae, but latter rarely limited to head. *Head* subquadrate behind eyes, temporal angles rounded; width behind eyes closely approximating width of anterior lobe of pronotum. *Pronotum* with obovate anterior lobe; ratio of pronotal width to length ranging from 1:1.37 to 1:1.57. *Elytra* ochreous; maculation of humeri dark brown to black, reduced to small spots or expanded into wide band contiguous at suture; median band brown to black, contiguous or faintly interrupted at suture; apical band wide, brown to black, enveloping apex; ochreous bar intervening between median and apical bands narrow, and V-shaped, transverse, or nearly obsolete; sides subparallel, widest near middle; profile not raised above level of pronotum, slightly convex, visibly impressed behind humeri; humeral angles prominent and evenly rounding; ratio of width to length ranging from 1:1.4 to 1:1.9. *Undersurface of thorax* piceous; posterior margin of anterior coxal floor not produced behind in acute cusp but rather slightly angulate and not projecting beyond middle of lateral lobes. Penultimate metatarsal segment narrow, not lobed, barely emarginate at apex, ultimate segment inserted near apex. *Abdomen* slightly to much darker than thorax, dark piceous to black. *Length* of male: 2.2 mm. to 2.5 mm.; width: 0.6 mm. to 0.8 mm.; length of female: 2.3 mm. to 2.8 mm.; width: 0.6 mm. to 0.8 mm.

*Type locality*—Tucson, Arizona. No other recorded distribution.

*New records*—Sedona, Arizona, May 19, 1947 (Edwin Potts); Phoenix, Arizona, May 8, 1947 (R. S. Beal); Willcox, Arizona, February 2, 1934 (Bryant); Nogales, Arizona, August 12, 1906 (specimen in Cal. Acad. Sci. collection); Robles Ranch, Pima Co., Arizona, August 17, 1947 (A. T. McClay); Los Mochis, Sinaloa, Mexico, July 20, 1922 (C. T. Dodds).

Though sympatric with *munda* and differing from it in few morphological characters, the large series I have examined never seem to intergrade with it. I have taken specimens running about on damp ground near streams and flying to lights. One adult specimen was collected under the bark of a decaying cottonwood at Tucson in the early part of March.

#### FORMICILLA MUNDA LeConte

Polished, ochraceous-buff to light piceous, dorsal surface sparsely set with fine, short, subrecumbent hairs and usually with long, erect setae. *Head* subquadrate behind eyes, temporal angles rounded; width behind eyes closely approximating width of anterior lobe of pronotum. *Pronotum* with obovate anterior lobe; ratio of pronotal width to length ranging from 1:1.25 to 1:1.51. *Elytra* with same ground color as head and pronotum; humeral maculae present or absent; fasciae at middle interrupted widely to narrowly at suture, occasionally much reduced; posterior fasciae wide, joined at suture, enveloping apex or not; sides subparallel, widest near middle; profile not raised above level of pronotum, slightly convex, visibly impressed behind humeri; humeral angles prominent and evenly rounding; ratio of width to length ranging from 1:1.3 to 1:1.7. *Undersurface of thorax* ochraceous-buff to light piceous; posterior margin of anterior coxal floor not produced behind in acute cusp but rather slightly angulate and not projecting beyond middle of lateral lobes. Penultimate metatarsal segment narrow, not lobed, barely emarginate at apex, ultimate segment inserted near apex. *Abdomen* identical in color to rest of undersurface. *Length* of male: 2.2 mm. to 2.5 mm.; width: 0.7 mm. to 0.8 mm.; length of female: 2.3 mm. to 2.7 mm.; width: 0.8 mm. to 0.9 mm.

#### FORMICILLA MUNDA MUNDA LeConte

*Formicilla munda* LeConte, 1851, Ann. Lyc. Nat. Hist. New York, 5:152; Casey, 1895, Ann. New York Acad. Sci., 8:646; Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

*Anthicus munda* LeConte, 1852, Proc. Acad. Nat. Sci. Phila., 6:94.  
*Formicus munda* LeConte, 1861, Class. of Coleopt., Part I, Smithsonian, Misc. Col., 3:266.

*Formicomus munda* (LeConte), Champion, 1890, Biol. Centr.-Amer., 4(2):220; Fall, 1901, Occas. Papers Calif. Acad. Sci., 8:181.

Humeri of elytra not or faintly marked with black; fasciae at middle extending to or but narrowly interrupted at suture; posterior fasciae variable, but never entirely covering apex at suture.

*Type locality*—Yuma, California. No other recorded distribution.

*New records*—Visalia, California, September 10, 1944 (L. R. Gillogly); 4 miles south of Dos Palos, Merced Co., California, September 7, 1946 (K. S. Hagen); Ehrenberg, Arizona, July, 1938 (F. H. Parker); Blythe, California, July 8 to August 24, 1947 (J. W. MacSwain); Globe, Arizona, August 3, 1935 (F. H. Parker). I have examined one specimen now in the collection of Mr. K. S. Hagen labeled simply "Tex.", but its validity may well be questioned until verified by subsequent collections in that state.

The coloration and vestiture of this subspecies is somewhat variable, occasional forms lacking the long tactile setae on both the elytra and pronotum, although never the short recumbent hairs. In this respect it varies in a different direction than the following subspecies, which apparently always possesses the setae, but which varies to a greater degree in the extent of its elytral maculation, which may be quite reduced or much heavier.

FORMICILLA MUNDA GRACILIPES (Champion), *new status*

*Formicomus gracilipes* Champion, 1890, Biol. Centr.-Amer., 4(2):220, and plate x, fig. 1.

*Formicilla gracilipes* (Champion), Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

Humeri of elytra strongly marked with black or not, apex of elytra enveloped by posterior fasciae or not; fasciae occasionally extremely reduced or median fasciae expanded and confluent at suture.

*Type locality*—Not recorded.

*Recorded distribution*—Cordova, Mexico; Vera Cruz, Mexico; Champerico, Guatemala; Paso Antonio, Guatemala.

*New record*—5 miles south of Cuernavaca, Mexico, Nov. 19, 1946 (E. S. Ross).

The information concerning the extremes of variation in this subspecies has been drawn from Champion's description and records in the *Biologia Centrali-Americana*. The two specimens I have examined differ so far as I can tell in no significant detail

from *munda munda*, but the apparent geographic isolation of the two forms and the seemingly different ranges of genetic variability of each serve to justify the subspecific categories.

#### FORMICILLA SCITULA (LeConte)

Highly polished, pale rufo-testaceous, dorsal surface sparsely set with long, erect, tactile setae. *Head* just discernably less pale than body, oval, temporal angles broadly rounded and indefinitely defined; ratio of width of head measured just behind eyes to width of pronotum closely approximating 1:0.9. *Pronotum* with anterior lobe rounding and widest about middle; ratio of width to length ranging from 1:1.37 to 1:1.66. *Elytra* of same ground color as pronotum; setae always present, fine recumbent hairs lacking; humeri with or without dark marking; brown to black fasciae just before middle not at all or widely interrupted at suture, extending to or widely removed from apex; sides rounding, widest near middle; profile convex, slightly raised above level of pronotum, slightly flattened behind humeri; humeri obtuse and sharply rounding; ratio of width to length ranging from 1:1.4 to 1:1.7. *Undersurface of thorax* light piceous; posterior margin of anterior coxal floor produced behind in acute cusp projecting to edge or beyond edge of lateral lobes. Penultimate metatarsal segment short and bilobed with ultimate segment inserted before middle. *Abdomen* identical in color to rest of undersurface. *Length* of male: 2.1 mm. to 2.7 mm.; width: 0.7 mm. to 0.9 mm.; length of female: 2.1 mm. to 2.7 mm.; width: 0.8 mm. to 1.0 mm.

#### FORMICILLA SCITULA SCITULA (LeConte)

*Anthicus scitula* LeConte, 1852, Proc. Acad. Nat. Sci. Phila., 6:94.

*Formicus scitula* LeConte, 1861, Class. Coleopt., Part I, Smithsonian Misc. Col., 3:266.

*Formicilla scitula* (LeConte), Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

Humeri without maculation; median fasciae separated by space equal to half width of elytron; posterior band narrower than space between it and apex, barely interrupted at suture.

*Type locality*—South Carolina. No other recorded distribution.

*New records*—St. Simons Island, Georgia, July 12, 1931 (C. A. Frost); Tybee Island, Georgia, June 20 (H. W. Wenzel).

#### FORMICILLA SCITULA EVANESCENS Casey, *new status*

*Formicilla evanescens* Casey, 1895, Ann. New York Acad. Sci., 8:646; Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

*Formicilla scitula*, Casey (nec LeConte), 1895, Ann. New York Acad. Sci., 8:644.

Humeri with or without dark markings; median fasciae contiguous at suture or separated by space equal to less than half

width of elytron; posterior band wide, as wide or wider than space between it and apex and often enveloping apex, interrupted at suture or not, sometimes confluent with median band.

*Type locality*—Austin, Texas.

*Recorded distribution*—Sebastian River, Florida.

*New records*—Brownsville, Texas, Sept., 1942 (E. S. Ross); Del Rio, Texas, July 23, 1924 (Wickham); Fedor, Texas (Birkman); Houston, Texas (Wickham); Corpus Christi, Texas, Oct. 20, 1905, April 13, 1906 (F. C. Pratt); Columbus, Texas, (Hubbard and Schwarz); Hidalgo, Texas, Sept. 2, 1940 (B. C. House); Roxie, Miss., Sept. 16, 1908 (W. D. Pierce); Maudeville, La., (H. Soltau); Shreveport, La., Sept. 14, 1908 (E. S. Tucker) and April 13, 1937 (Anderson); Peach Co., Ga., Nov. 19, 1937 (Turner); Jasper Co., Ga., July 25, 1936; Experiment, Ga., Nov. 10, 1935 (T. L. Bissell); Capron, Florida (Hubbard and Schwarz).

In his redescription of *scitula* Casey evidently had before him specimens from Florida only, which, although tending to be somewhat lighter in color than the Texas form, are closer to it than to the form originally described by LeConte from South Carolina. Perhaps other subspecies of *scitula* should be recognized than those here described, but present collections are not extensive enough to afford their determination.

#### SPECIES DESCRIBED BUT UNRECOGNIZED

*Formicilla punctata* Pic, 1904, Ann. Mus. Zool. St. Petersb., 9:491; Pic, 1911, Junk Coleopt. Cat., pars 36, p. 22.

I feel reasonably certain that *punctata*, said to be distinguished by large serial punctures of the elytra, especially on the disc, will prove, upon examination of the type, to be a synonym of one of our described species. The locality given by Pic is "Etats-Unis: Obisop (ex Motschulsky)." Since good diagnostic characters are not mentioned in the description, its systematic position must remain in doubt.

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## A NEW NITELA FROM CALIFORNIA

(Hymenoptera, Sphecidae)

BY KARL V. KROMBEIN

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The present species, the first known from the United States from west of the Mississippi River, is described at this time so that the name will be available for inclusion in the forthcoming synoptic catalog of North American Hymenoptera.

### *Nitela townesorum*<sup>1</sup> Krombein, new species

*Female.* Body length 4.3 mm., forewing 3.1 mm. Mandible except base, tegula, trochanters and tarsi, ferruginous; palpi and tibial spurs testaceous. Pubescence inconspicuous, short, pale and sparse. Wings hyaline, stigma dark brown, venation lighter brown.

Head opaque, the front with numerous small punctures, the interspaces finely lineolate, temples finely lineolate; clypeal lobe obliquely angulate laterally; median carina of clypeus low, termi-

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<sup>1</sup>I take pleasure in naming this species for its collectors, Henry, Marjorie, George, David and Jean Townes.